Date: Wed, 1 Jun 94 04:30:19 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #147
To: Ham-Homebrew

Ham-Homebrew Digest   Wed, 1 Jun 94   Volume 94 : Issue 147

Today's Topics:

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

Date: Wed, 25 May 1994 18:49:01 GMT
From: walter!NewsWatcher!user@uunet.uu.net
Subject: Ham-Homebrew Digest V94 #129
To: ham-homebrew@ucsd.edu

In article <Pine.3.89.9405181450.A18449-0100000@paul.spu.edu>,
lmelton@paul.spu.EDU (Lyle D. Melton) wrote:
>
> In response to the question about telephone voltages in Europe....
>
>
> I just returned from a 3 yr stay in Italy and used our U.S. phones
> without problems. If that helps... they are probably the same.
>
One thing to note about the European telephone systems, what works in one
country may not work in another. While there are international standards,
they are not always implemented in every country.

"Typical" European values for telephone set operating parameters are:

Common Battery Voltage -48V dc
Operating Current
20 to 80 mA
Subscriber Loop Resistance 0 to 1300 Ohms
Loop loss
8 dB
Ringing Signal
16 to 50 Hz, 40 to 130 V rms

These are basically the same as in the U.S. Again, these represent "typical" values and may vary among different European countries.

Another thing to think about is dialing. Dual Tone Multi-Frequency (Touch Tone) dialing is not very common, even in some of the more advanced countries. The pulse dialing in many countries is probably similar to the U.S., but don't assume this is true everywhere.

Bottom line: Most U.S. phones using pulse dialing will work in most European countries.

P.S. Notice that I didn't define Most ;-)

--
Daniel J. Connolly
dcon@cc.bellcore.com
Bellcore
(These are my words, not Bellcore's)
--

Date: Mon, 30 May 1994 20:18:20 GMT
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!howland.reston.ans.net!
news.cac.psu.edu!news.pop.psu.edu!psuvax1!news.ecn.bgu.edu!feenix.metronet.com!
pubcon!matt.mccullar@network.ucsd.edu
Subject: need homebrew "recipes"
To: ham-homebrew@ucsd.edu

John, I've seen some good-looking projects (kits) for 2 meters and some other bands by, of all people, JDR Microdevices in San Jose (1-800-538-5000). Looking through their catalog, they've got QRP transmitter and receiver kits for 20, 40, and 80 meters; CMOS keyer kit; packet radio kit; TV transmitter kit; 2-meter transceiver kit; 2-meter power amp kit. And on and on. Their BBS number is (408) 494-1430.

Good luck!

Matt J. McCullar, KJ5BA

Date: Tue, 31 May 1994 21:55:38 GMT
From: spsgate!mogate!newsgate!news@uunet.uu.net
Subject: need homebrew "recipes"
To: ham-homebrew@ucsd.edu

In article <940531012744313@pubcon.com> matt.mccullar@pubcon.com (Matt Mccullar) writes:
> John, I've seen some good-looking projects (kits) for 2 meters and some
> other bands by, of all people, JDR Microdevices in San Jose
> (1-800-538-5000). Looking through their catalog, they've got QRP
> transmitter and receiver kits for 20, 40, and 80 meters; CMOS keyer
> kit; packet radio kit; TV transmitter kit; 2-meter transceiver kit;
> 2-meter power amp kit. And on and on. Their BBS number is (408)
> 494-1430.
>
I believe those are actually the Ramsey kits. Apparently they are now being sold by JDR as well as directly from Ramsey.

Mark   AA7TA

Date: 31 May 1994 12:15:08 GMT
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!math.ohio-state.edu!jussieu.fr!univ-lyon1.fr!elendir@network.ucsd.edu
Subject: SSB Filters
To: ham-homebrew@ucsd.edu

 Hello everybody !

 Thanks for your helping answers. I finally got a filter (in France) - 10.7 MHz with 2.2 kHz bandwith. It went with the lateral Xtals (10.6985 MHz in my case). But I have taken note of the different addresses you gave me.

 The choice of the 10.7 MHz IF is not innocent. I am aware that one of the problem when using packet radio is PLL locking time between RX and TX. It takes about 200 ms, if your step is really small. By using a 10.7 MHz IF for both TX and RX, I completly eliminate this problem, since the PLL remains on the same frequency. I can also use a very cheap ceramic filter to filter the FM.
 I know little about helicoidal filters, so I d be pretty interested in knowing more. Also, I d like to know what frequency swing you can expect from a Xtal oscillator modulated by a varicap diode.

Many thanks again ! And 73 from F1RCS, Vince, QTH : Paris.

Oh BTW,

: Have you considered a phasing sideband generator?

Yes. BF shifter is a bit complex. Unless using a FIR to implement the Hilbert filter.

Date: Tue, 31 May 1994 15:40:25 GMT
From: ihnp4.ucsd.edu!sdd.hp.com!col.hp.com!news.dtc.hp.com!hplextra!hplb!hpwin055.uksr!hpqmoea!dstock@network.ucsd.edu
Subject: SSB Filters
To: ham-homebrew@ucsd.edu

Elendir (elendir@enst.fr) wrote:

: I know little about helicoidal filters, so I d be pretty interested in knowing
: more.

Connaisez-vous "Handbook of filter synthesis" par Anatol I Zverev, John Wiley and sons inc New York 1967 ISBN 0 471 98680 1 ? chapitre 9 "Helical filters" . c'est le tome definitif pour le dessein mathematique des filtres.

Also, I d like to know what frequency swing you can expect from a Xtal
: oscillator modulated by a varicap diode.

(sorry, my French isn't adequate for this part..)

It depends a lot on the frequency, the circuit, and production tolerences. With care a 200 ppm (parts per million) tuning range can be reasonably reliably achieved for a favourable frequency and circuit.

beware that overtone crystals are far far harder to pull. In general terms, if you have two crystals at the same frequency, the overtone one will give a swing reduced by a factor roughly equal to the square of its overtone number.

Example:

A 25 MHz fundamental crystal in an oscillator circuit with a swing of 100 ppm. replace the crystal with one with its third overtone at 25 MHz, and you'll get about 100/(3^2) = 11 ppm swing ! (very roughly!)

If the tuning range is important, use a funamental crystal at a

suitable frequency, and use frequency multipliers.

  Beware of attempts to pull an oscillator too far, you'll suffer from temperature dependant failure to start, etc etc.

   Bon chance

            David   GM4ZNX

Date: 31 May 1994 02:18:26 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!usenet.ins.cwru.edu!eff!news.kei.com!hookup!news2.sprintlink.net!news.sprintlink.net!indirect.com!patrick@network.ucsd.edu
Subject: Techno Whizzy DDS
To: ham-homebrew@ucsd.edu

Ferraro14 (ferraro14@aol.com) wrote:
: Is anybody expirimenting with the techno whizzy dds or any other DDS.

I'm building a PC-based DDS around the Qualcomm DDS - when I get the time to work on it :(Board is designed and half wired.

Pat

Date: 31 May 1994 08:56:28 -0700
From: nntp.crl.com!crl2.crl.com!not-for-mail@decwrl.dec.com
Subject: Techno Whizzy DDS
To: ham-homebrew@ucsd.edu

In article <2se6pi$kfg@herald.indirect.com> patrick@indirect.com (Patrick Berry) writes:
>Ferraro14 (ferraro14@aol.com) wrote:
>: Is anybody expirimenting with the techno whizzy dds or any other DDS.
>
>I'm building a PC-based DDS around the Qualcomm DDS - when I get the time
>to work on it :(Board is designed and half wired.
>
>Pat
>

I really hope that you don't keep this all to yourself! 8-) I have wanted to do one of those for quite a while. What has your costs been so far? How much is the Qualcomm DDS and where did you get it? Thanks for any info you can give me!

Jeff
AB6MB

Date: Tue, 31 May 1994 09:36:27 GMT
From: lll-winken.llnl.gov!overload.lbl.gov!agate!howland.reston.ans.net!math.ohio-state.edu!sdd.hp.com!hpscit.sc.hp.com!news.dtc.hp.com!hplextra!hplb!hpwin055.uksr!hpqmoea!dstock@ames.arpa
Subject: Techno Whizzy DDS
To: ham-homebrew@ucsd.edu

Ferraro14 (ferraro14@aol.com) wrote:
: Is anybody expirimenting with the techno whizzy dds or any other DDS.
: Has any body read the two tech articles in QST by Rohde on receivers

No, yes, both.

But seriously... Have you seen the data on the various Qualcomm devices, and those from Analog Devices ? The AD7008 seems to be THE device now. I've got one running on its demo board.

Ulrich Rohde's articles are very important, but I wonder whether they will be fully appreciated. He is exactly right about the very poor distribution of gain in the usual Japanese transceivers, and the effect it has on receiver performance. As the bands become more crowded and the adjacent broadcasters buy still more watts, this will become even more important. The existing radios seem to have their gain profile planned to minimise the need for internal screening above all other considerations.

He suggests a low frequency DDS with a PLL frequency multiplier following it. This has some good points, and some bad ones. A DDS alone, like the Technowhizzy, can work nicely as a transmitter but runs into problems in a receiver. DDS quantising noise terms will be 60-70dB down on the output signal, and will be present at various frequencies over (and a little beyond due to limitations on practical filters) the full tuning range of the DDS. The exact frequencies of these quantising components will move around as you tune the DDS. Putting a PLL between the DDS and the receiver structure, either in a multiplicatice role as Rohde suggests, or in an additive structure as done in current production radios will impose a tracking filter effect on the LO, which

will remove quantisation components that are outside the loop bandwidth (usually kHz to at most tens of kilohertz)

The worst case is if we tune the DDS to a frequency where its output is close to a quantisation component - close enough to pass the PLL. The true input to the PLL is the vector sum of the DDS wanted output AND the quantisation component. The difference in their frequencies and the amplitude limiting effect of the PSD in the PLL will let this be treated as a phase-modulation sideband. The PLL will pass this phase modulation. In an additive system, the component is passed to the receiver LO signal at its same strength relative to the wanted signal. In a multiplicative system, the PLL multiplier will multiply the phase modulation, giving an unwanted output 20 log (N) dB higher than before (N is the freq multiplication factor for the PLL)

This does not rule out such systems, but it does point out that DDS quantisation is more critical, and some art is needed in the choice of frequency ranges to try to avoid the very worst cases, if possible.

Rohde is right, the system he suggests is simple and elegant. For an upconverting radio, the LO needs to cover less than an octave, so a fixed ratio PLL is OK, which allows better loop design as the effects of variable N need not be allowed for. With the current progress of creating better and better high speed DACs, I think it may be the way to go. If a new DAC offers better resolution and glitch energy, the quantisation components will be reduced. If a new DAC offers faster speed for the same quantisation component levels, then the PLL can be designed with lower N, and so reducing the multiplication factor, thus making a cleaner LO.

The thing to beware of is that these systems look fine at some frequencies, and only produce problems at a few regions.

Cheers

David GM4ZNX

End of Ham-Homebrew Digest V94 #147

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